

INLAY AND MARQUETRY. By W. AUMONIER and HEYWOOD SUMNER.

Read before the Royal Institute of British Architects, Monday, 7th April 1902.

I.—VENEER WORK AND SOLID INLAY. By W. AUMONIER.

I THANK you for inviting me to contribute to this evening's proceedings, and I ask you to please understand, first, that I confine my remarks entirely to work in wood, ivory, or shells, not touching on the question of inlays in metals, marble, or kindred materials; and, secondly, that I do not propose to give in any way a learned or historical Paper, but to speak only on matters which come absolutely within the scope of my own observation and experience.

The title of the subject for consideration this evening is "Inlay and Marquetry." Now there are two distinct methods of proceeding in making inlaid wood. The one is to cut the design which is intended to be inlaid, and the ground or field, out of various sorts of veneers, all of the same thickness, fitting and fixing them together by thin paper on one face, and laying this, the open face downwards, as a whole upon a solid ground or board. This is absolutely and altogether veneered work all over. The other way is to cut your design out in separate pieces as above, but out of wood $\frac{3}{16}$ in. to $\frac{1}{4}$ in. thick, using the same processes of marking out in both cases, and then putting the complete print of the whole design on to, this time, a solid ground or board, sinking holes into this by carver's tools the required depth, and driving the pieces in, thus making a solid inlay.

These, though similar in appearance when finished, are so distinctly different in their manner of execution that it is an easy matter to fix them in one's mind and keep them there, each in its proper place, apart from the other, and think of them as different work.

Yes, I think that is easy enough; but what is difficult is to find one word in any known language that will enable you to differentiate between the two by merely naming them, and as a consequence there is great confusion in people's minds in talking about this subject, as in speaking airily of "marquetry" and "inlay" they or we never quite know which sort of work they mean—whether the solid inlay or the wholly veneered work. Nor can we know, because the usually accepted terms of description are the same in both cases, the English expression "wood inlay," the Italian "intarsiatura," and the French "marqueterie" applying in all cases equally for solid inlay and for veneered work.

But I want to clear the ground a little; and while I admit that the general term "inlaid wood" may cover the two sorts of work, yet for purposes of particular description or identification I wish to be allowed, for the clearer understanding of the subject, to consider "marquetry" to mean wholly veneered work, and "inlay" to mean the "solid inlay" I have before described; and inasmuch as "marquetry" is derived from a French word, and the French did little inlay of any sort before the time of Louis XIV., and since then have done

practically none but veneered work, I think I have a certain amount of reason on my side in doing so, and I think that the English language would be enriched if we made up our minds boldly to use these two words always in this sense, so as to apply a distinct and individual word to describe each one apart from the other, as they are so obviously different in their manner of workmanship.

Now the process of working is this: Mark your pieces that are going to form your pattern anywhere about your wood, making suitable selections of grain and colour, and cut them out separately, so that the design is now lying about in loose pieces. Paste them on to



EXAMPLE OF THE METHOD OF SOLID INLAY BY W. AUMONIER.

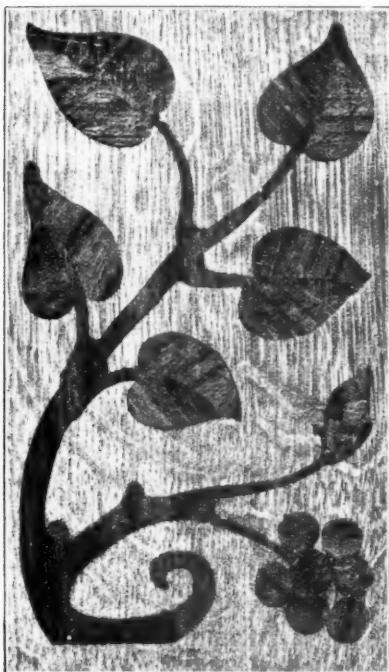
The pattern, having been carefully pounced on to paper, is pasted down on to the solid ground, and with carver's tools the whole design is sunk in the wood ready to receive the sawn inlay.

The design is sawn out by hand and glued on to the pounced paper. It is now ready to be driven into the sunk ground.

a tracing of the pattern which you have already made on thin paper, in all their right positions, and place this as a whole on the face of the wood which is to form your ground colour, having first pasted white paper over its surface. Then, with transfer-paper between the two, you carefully mark all round each piece with a fine steel point. You now have the whole of your design clearly marked on your white-papered ground. Whether veneer or solid the process is the same thus far. Cut out your holes with a saw, if veneer, or, if solid, sink them with carver's tools, as before described. In the case of veneer work you then fit and fix all your pattern together with glue and thin paper, and lay in one piece on your solid

ground or foundation, and keep down in a press till dry. With the solid inlay you merely drive your pieces in, with glue, one at a time, or in any way most convenient.

This is the old-fashioned way of marking the work in, but there is another method largely employed now, which is quicker in execution. The plan of proceeding in this case is to prick the whole design through thin white paper, thus making a pattern, and, pouncing this through several times on to other papers, you make several prints, which are then cut up as required and stuck on to the several pieces of wood which form the design, one whole print being reserved to paste complete on to the ground or field, so that each piece may be cut as



EXAMPLE OF THE METHOD OF SOLID INLAY BY W. AUMONIER.

The finished Panel.

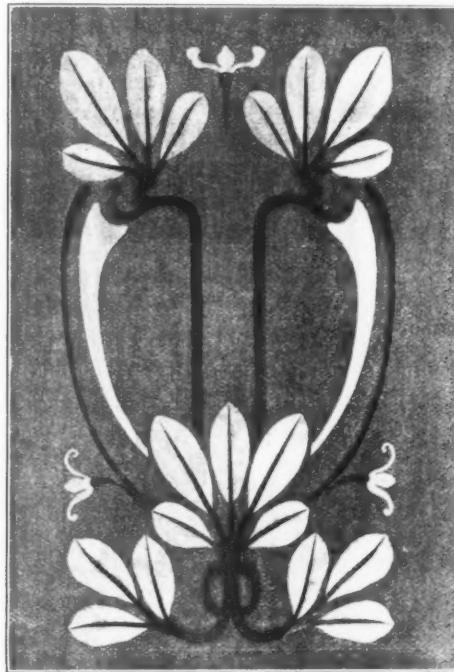


ILLUSTRATION OF SIMPLE VENEER MARQUETRY IN THREE WOODS.

separately as you like, but they are all bound to fit into the complete pattern when this is cut out of the ground, because all are cut from the same prints.

While on this technical side of the question I may perhaps allude to the prevalent idea that in "marquetry" the design is actually cut at once through two or more pieces of wood held together, and that one piece drops into the other, as in a child's puzzle; but this plan is never followed in the best work. There each piece must be cut separately, so as to ensure accuracy of fitting.

Then there is another technical point that is perhaps interesting; I mean shading by hot sand. This is done to obtain the effect of soft shadow travelling in from the edge of a piece and gradually fading into light towards the middle. This end is accomplished by pressing the piece vertically, before it is laid, into a box of very hot sand, and holding it there until it

has become sufficiently scorched to change the colour to the desired degree. Many pleasant effects of gradations of colour may be obtained by this process, which was largely used in some old work. It is well enough where it is used as an effect of colour, as colour alone, but not when it is employed to give an effect of roundness or relief. There I think it is wrong. But I shall have something more to say about that part of the subject later on.

So much for technicalities and meanings of words. But do not let us trouble too much about definitions. However, I have noticed they quote in the dictionary a delightful passage from Tennyson under the head of "Inlay," and if you will allow me I will read it, for I find that when a poet speaks you soon get beyond dictionaries in trying to catch the real significance of a word. He says :

"The sloping of the moonlit sward
Was damask work, and deep inlay
Of braided blooms, which crept
Adown to where the waters slept."

That is the picture I should like to have in my mind when thinking of wood inlay.—("Braided blooms," I think this is a very apt expression. Did you ever notice the shadows of plants and flowers cast on the cottager's window-blind, as seen from the outside? They are very suggestive of inlay.)

On the proper treatment of marquetry and inlay I can only give my own opinion, and personally I would say, first, avoid strong contrasts or too many different colours on the same panel. Perhaps I ought to modify this opinion (about strong contrasts) in the case of the use of precious material, such as ivory in ebony, or mother-of-pearl in rosewood. Such beautiful work has been, and can be, done in these combinations that one is disposed to forgive much for their sake. However I think, generally speaking, one should avoid strong contrasts of colour. Depend rather upon soft harmonies, such as are seen in the best examples of Louis-XVI. work, with their warm soft greys and yellows, or in the golden glow of the magnificent "inlay" in Pisa Cathedral. When I was in Pisa I could not get away from the idea that at some time or another the sunset sky had found its way into the cathedral and become permanently printed on the woodwork, and that even the tears of the kneeling saints—or sinners—had not yet washed it all away.

(In speaking of Louis-XVI. work I am not inviting you to admire it in all respects absolutely, because I know there would be an outcry, among some of my audience at least, if I did. But I speak only of its colours and harmonies, which I think are often very beautiful.)

Try and get a broad effect, produced by the quality and colour of the wood itself and by the direction of grain in which each piece is placed. Do not on any account use scratching or engraving on the surface of the inlay, least of all to express roundness or relief in form. Keep to an absolutely flat treatment, as you are dealing with a flat surface. Do not disturb the eye—or the perception of fitness—by trying to make your inlay look like something which it is not. It is flat; keep it flat in appearance; and, apart from any quality you may give your design, do not seek for other beauty in your work than that which the wood itself will give you. Wood is generous enough, and will give you a quite satisfying charm—if properly handled—with its ever-varying grain placed in different positions and seen under changing aspects. And if you must have lines to complete the drawing, let them be produced by saw cuts running in. These are more characteristic than scratches on the surface; and if you must have shadows produce them by the disposition of colours and grain of your separate pieces of wood, and not by scratched lines. Remember what Ruskin told us about "Stained Glass"—"Paint with glass, not on glass"—and I would say in reference to inlay, Paint with wood, not on wood.

Further, do not aim at too great fineness or intricacies and complications of lines in your design. These qualities do not belong to wood essentially, and can be attained better in other materials, such as the silver wire, twirled by the flying fingers of a Genoese filigree-worker, and a spider can weave you a web with a finer line than all. No; go for a broad effect, principally of masses—lines as well, used as stalks or growth in the design, but not too fine or intricate, and never scratched on the surface.

Referring again to my remarks just now about strong contrast and too many colours on the same panel, while I am prepared to withdraw any positive dictum about strong contrasts—if under certain circumstances they are felt to be wanted—I withdraw nothing I have said against using too many colours in one subject, or of scratching or engraving on the surface of the work, because I have noticed a tendency in some cases towards the attempt to make too much of a picture of “inlay”—which cannot be passed over without allusion in a Paper of this sort. I would say, do not try to emulate the painter in designing inlay. He, with his unlimited palette of colours, can easily attain to higher flights of fancy than are possible to you with your pieces of wood. He can give you mystery, and he can give you dreams, and, like the language of diplomacy, he can so dress up an untruth as to make it appear like a truth. All this is comparatively easy to him, and by so much his work must take a higher standard than yours. So it is useless to try and imitate it in wood.

Why, a painter can give you a single face that will tell the complete history of a whole life; and you shall see in that face the impress of years spent in labour, love, and duty bravely done, and through and above it all shall shine the light of abiding faith in a Divine Power.

In three inches of canvas he can give you all this. But you, with your pieces of wood and ivory, though you engrave an inch deep, and use all the colours of a Joseph's coat, can do none of these things, and by so much as you try to do them beyond the limits of your material by so much will your work lose dignity and individual character.

All that you can hope for is to learn the value of set forms. All that you can attain to is the right use of these and the reticent employment of such colours as you have at your disposal. The diplomatist's language is of little use to you. You must say “yes” or “no” in a straightforward manner, and only speak in such language as the wood itself gives you.

I should like now to say something about the difference—as it appears to me—between the quality of marquetry and inlay, taking these words to bear the meaning I attached to them at the beginning of my Paper. I think then that “marquetry,” being wholly the work of the saw, however beautiful the design may be at the first, is apt to become a little too soft

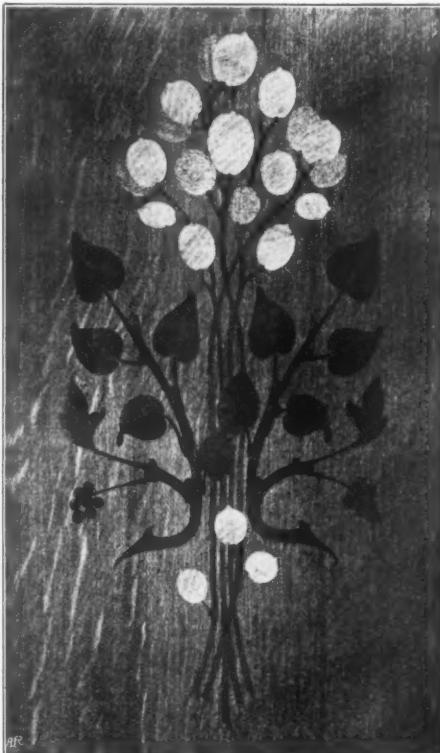
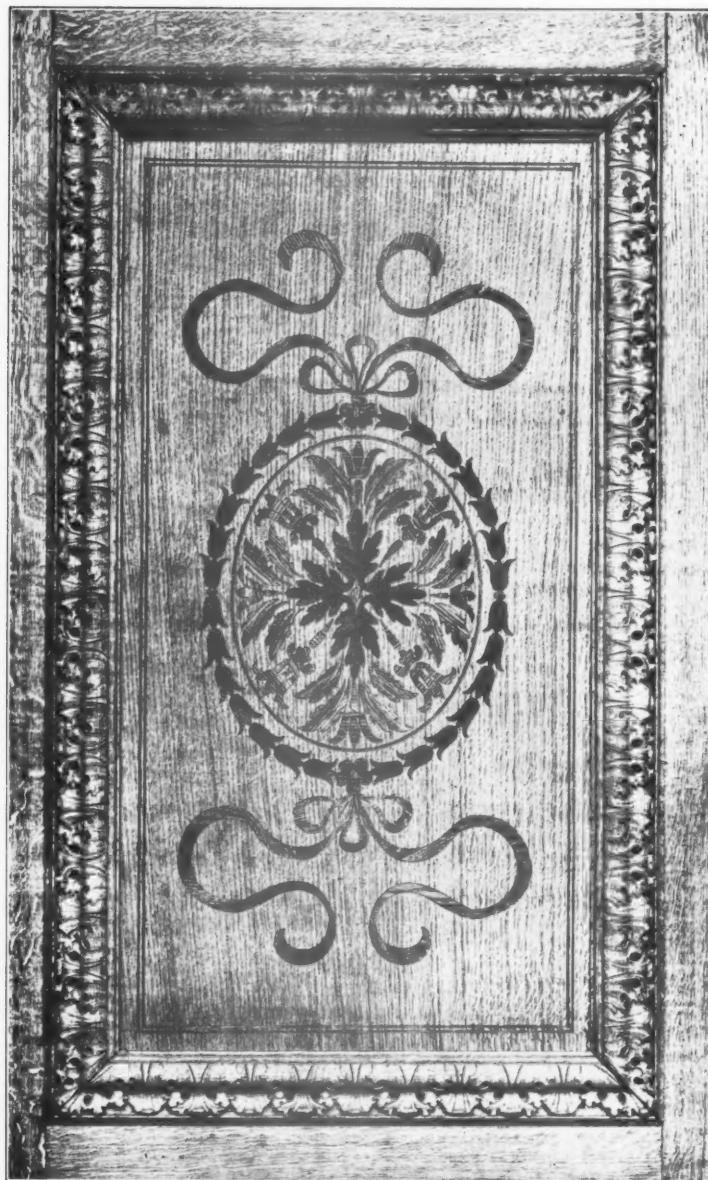


ILLUSTRATION OF VENEER MARQUETRY OF SIMPLE DESIGN IN FOUR WOODS.



SOLID INLAY PANEL WITH CARVED BORDER TO FRONT OF BISHOP'S THRONE, ST. PAUL'S CATHEDRAL.

(Carried out by W. Aumonier.)

of the finest examples of marquetry or wholly veneered work without feeling that although in that the last word has been spoken in consummate craftsmanship, yet there still remains

and undulating, and, if I may say so, perhaps a little bit flabby in parts, under the influence of that more or less mechanical instrument; while on the other hand inlay, being partly the saw's work and in part the work of carver's tools—cutting in and working by hand—is capable of receiving a stronger, more vigorous treatment of outline, and is therefore likely to, and often does, reach an individual and life-like character of form unattained by the saw alone, which stamps it as finer work—from an art point of view; and even the occasional inaccuracies of fitting, and consequent different thicknesses of joints here and there, give it a distinct charm of its own—above all the more exact qualities of its sister art. Also it has a more pleasing quality of surface, especially as in course of time the inlay, being thinner, shrinks more than the solid ground and thus becomes a little lower than the general surface, making a delightful play on the face of the work. Therefore one can hardly leave the study

something to say for the more (if you like) crude work in solid inlay. There is one point that is interesting to note in connection with solid inlay which I have not yet touched on. It is that in the early work it is evident they had no glue as we know it—certainly not of the quality and strength we have—because one frequently finds the inlay pinned in with a number of wooden pins, which circumstance, by the way, gives quite a piquancy and quality of its own to the work.

I fear I am tiring you, but I want to speak, if I may, of another sort of inlay, which if I speak of I only do so to condemn with all the strength I can. I mean solid inlay with the inlay left in relief and afterwards carved; and if you want to know how to do this I should say, Don't try it. It is an abomination, and, like a "Will-o'-the-wisp," will only lead you astray—astray from the paths of truth and from the paths of art. And why I would strongly condemn this sort of work is briefly this: Carving—as carving—is not improved by having its ground made of a different colour from itself. Inlay—as inlay—is not helped by having its surface frittered away by the undulations of carving. In the name of the eternal fitness of things, do not mix these two crafts together which need not each other's aid. Each one has a distinct and patent beauty of its own—inlay by its harmony of flat colour; carving by the inimitable combination of light and shade, ever caught on its palpitating surface, irrespective of all colour whatever.

In conclusion I thank you all for your kind reception, and for listening to me to-night, and I feel that I cannot do better, at the last, than ask you to sweep away all miserable scratchy, uncharacteristic work, and get back to the face of Nature for inspiration in this as in other arts (and by "getting back to Nature" I mean get back to the aspect of Nature generally). Do not on any account copy a leaf or a flower botanically, but work in sympathy with the pictures which Nature is for ever spreading before us, without attempting to show more detail on a given square inch of your design than can be appreciated while looking at the whole). In this favoured country of ours there is scarcely a square yard of forest, garden, field, or hedgerow that will not furnish forth a suggestion, in line and colour, for the decorative treatment of an inlaid panel. Get back to the "braided blooms," to the shadows of plants on cottage blinds, and under the open sky watch the clouds cast their impress on the hushed bosom of the sleeping sea. Get back to Nature, and she will give you beauty, and she will teach you fitness, and these two—beauty and fitness—are key-notes to the whole great concert of decorative art.

II.—ON COLOURED WAX STOPPINGS. By HEYWOOD SUMNER.

MOST Papers begin with an apologia—a disclaimer of authority on the part of the author—an appeal for indulgence because of the writer's youth, or age, or lack of time, or literary inability, or what not; and I have no wish to depart from a form which at least is founded upon experience and the survival of apologetic Paper-readers. We all hope that modesty may mollify our audience and that we may have the good fortune to really meet and talk to the "gentle reader" whom our forefathers used to woo in their urbane prefaces. Accordingly I apologise for this Paper—a Paper which really is better described as a practical note, and a practical note, moreover, on the simplest form of inlay in wood—namely, coloured wax stoppings.

The dictionary tells me that "inlay" consists of "pearl, ivory, choice woods, or the like inserted in wood." Well, you cannot compare coloured wax stoppings with such inherently beautiful materials as "pearl, ivory, or choice woods," therefore you must accept simplicity of

material in the means at your disposal; at the same time, you may be reminded that fine results have been achieved in the past by these simple means, and so it may be worth while to recall attention to a form of inlay which has fallen into neglect.

If anyone will go to the Victoria and Albert Museum, in one of its darkest corners he will see a number of *cassones*, old chests, covered with incisions and carvings. These chests have been filled in with coloured wax. On the oldest, which dates back to 1530, a certain amount of colour still remains in the incisions, and where the colour has come out, from its being incised, it still tells quite firmly, as designed. What were these *cassones*, and how were they done? So far as I know, they were the wedding gifts of fairly well-to-do people to the bride—at least from the parents to the bride. They held her costumes—her trousseau. On the outside of them were carved romantic allegories, as was quite fitting in a piece of furniture that had so romantic an origin. You wonder how this was done. When you look a little closer you find that the work is incised, and that the incisions have been filled in with coloured wax—green and red wax as a rule. They had three ways of expressing their design in this method: it is either done by spaces of colour silhouetting the figures, or else it is done by lines, or it is done by spots—and in the lines and in the spots you will find nearly all the stopping has vanished; but in the larger spaces you will see that the stopping has remained fairly firm—for 500 years. I attribute that to the fact that the larger spaces would be got out with small gouges and chisels, and that therefore there was a key at the bottoms; and that where the lines and the spots came it was with the blade, just cut down like engraving, and that there was no key in the bottoms in those lines, so that in time the stopping came out. That has been the case. But I think that you will be surprised to see how beautiful the thing still is; it has faded, yet it still possesses the bloom of its early beauty. You feel what a beautiful thing it is. It is not the least like a painting, part of which has been effaced, and which always has a look of disease—an appearance of something or other gone wrong; but this merely looks a little faded. Just as in another art altogether—the *carillons* of Bruges—although some of the bells are wanting, they still sound extraordinarily beautiful, with that dim misty sound of broken air. So in these old *cassones* there is a broken air of melody in the design that still remains a thing of beauty, although the wax-coloured inlay has gone.

These old examples show what fine things can be done in this method by artists who understand the graphic possibilities and the limitations of flat surface decoration.

About fifteen years ago, urged on by my admiration of these old examples, I made several small experiments in this method, and as I have been asked by the Council of the Royal Institute of British Architects to give the results of my experience—which has now stood the test of some time—I am glad to repeat the methodical notes which I contributed on this subject to the July number of the *Art Journal* last year. First trace your design on the panel of wood to be incised; cut it, either with a V-tool or knife-blade fixed in a tool handle; clear out the larger spaces with a small gouge, leaving tool-mark roughness in the bottoms for key; when cut, stop the suction of the wood by several coats of white hard polish. Your coloured stoppings you must make. Resin (as white as you can get it), beeswax, and powder distemper colour are the three things needful, and *Spou's Workshop Receipts* will put you into the right way of making your stoppings—with this reservation, reduce the proportion of resin, as this tends to make the wax over-brittle. For running the melted wax into the incisions—that is, for the inlay—I have made use of the small funnel with handle and gas-jet affixed which I have here: by means of indiarubber tubing it is attachable to the nearest gas burner, and thus a regulated heat can be applied to the funnel. When thus attached and heated drop pieces of wax of the intended inlay colour into the funnel, and soon there will be a run of

melted wax dropping from the end of the funnel-spout, which is easily guided by means of the wooden handle, and thus the entire panel may be inlaid with the melted wax. When this is all done clear off the superfluous surface wax with a broad chisel so as to make the whole surface flush, and then, if you have rightly stopped the suction of the wood by the white hard polish, your panel should all tell with clean sharp contrast of flush wood-lines against coloured stopping surface, colour stopping lines against wood surface : if the suction is not stopped the hot wax will enter the grain of the wood and stain it.

I have also filled in incised panels successfully with japanner's gold size and powdered distemper colour, using a palette knife to distribute the slab mixture. This sinks as it hardens, and will probably need a second filling in to make a flush job.

In both cases, I should add, the stopping has proved durable and tenacious, but the melted wax gives a more interesting and accidental result, and is better suited for designs that depend on spaces of colour-stopping for their effect.

Individual preference will suggest the wood to be used for this work, a close grain being the one thing needful. The specimens I have brought here are lime, birch, and a box of kauri pine. The last you will see is not sufficiently close-grained and is slightly wax-stained in the inlay, but it was made where choice of woods was limited. As to design, that which is suited to this sort of inlay may be compared to a broad sort of engraving. The lines must be wide enough to hold the wax and the spaces of colour must have occasional ridges—like cloissons—in order to hold the wax and to keep the flush surface of the panel when the chisel shaves it down ; but within certain limits, which must be felt, the manner of design is more free than is the case with inlay composed of veneers of hard material ; and the absence of beauty of material—*e.g.* pearl, ivory, or choice woods—must be forgotten in the beauty, fancy, and austere freedom with which the incised decoration is expressed. Certainly I think that the specimens which I have spoken of in our Museum show all these qualities of design—beauty, fancy, and austere freedom of handling ; and accordingly I cannot do better than to urge the claim of these old relics to be studied both for method, application, and romantic design of coloured wax inlay in wood, and to hope that others may be fired with the desire to further experiment in this simple method.

As to its application, I will not suggest beginning with results—with such fine results as the old examples to which I have called attention, but will turn to real homely requirement, from which a more stately application might arise. I think that we have in our time lost a number of nice little simple household things that our forefathers used to enjoy. Our grandmothers, when they made tea, used to have a tea-caddy. They had a nice tea-caddy with delightful inlay. Where is that tea-caddy gone ? We drink more tea than ever, but the tea-caddy has departed. Then some of us smoke cigarettes, but the cigarette-box makers do not seem to care to use this process of inlay. Again, when I was at school I had a nice brass-bound desk with a secret drawer in which I was always hoping to find money. Those are quite things of the past. When I send my boy to school, and ask for a desk, I get a deadly dull thing with a lump of brass in the middle, that a boy, if he tried with both hands, could not get fond of. Then, again, clocks. Just think of the beauty of a clock-case. We all want to know the time nowadays, and we bustle more than ever ; but for modern artistic clock-cases there seems very little demand. There is a demand for chiming clocks—why I do not quite know, since they are maddening things. But no one seems to crave a stately clock that will make him feel a better sort of man ! This qualification is very true, for if you have a fine thing in your house you try to live up to it. There is another neglected thing, the barometer. It seems odd to me that so admirable an instrument has never suggested fine craftsmanship to the imagination. Why should not craftsmen in inlay give us these quiet homely things that

we are always needing and using? If anything I have said to-night were to turn our really skilful cabinet-makers—the men who understand the whole mystery, like Mr. Aumonier—to this very simple side of the craft, I should feel that I had done a very good evening's work.

DISCUSSION OF THE FOREGOING PAPERS.

The President, Mr. WILLIAM EMERSON, in the Chair.

MR. AUMONIER, at the request of a member, called attention to the chief points of interest in the specimens brought from the Victoria and Albert Museum, and in doing so referred to the prevalent idea that marquetry was cut out of two or three veneers, and that one piece dropped into another like a child's puzzle. That idea was altogether wrong. Each piece was cut separately.

MR. J. D. CRACE: Mr. Aumonier is mistaken in saying that two or three veneers are not cut. I have seen it done over and over again.

MR. AUMONIER: Only in crude work is the cut-out pattern used again in the space it leaves. Of course, the veneers are generally cut three or four together—for convenience.

MR. CRACE: I have seen it in Elizabethan work, and I have seen it done in my own workshops.

MR. AUMONIER: Elizabethan work cannot be called high technique. In first-class technique work it is never done; it is not possible, because you must bore a hole for the saw.

MR. CRACE said he had listened with the greatest interest to Mr. Aumonier's Paper, and, although he was moved for a moment to differ from him on a particular point, he was very glad to add words of thanks for his very interesting Paper. It happened to be interesting to him because one of the first times he came into the rooms of the Institute was exactly forty-five years ago, when his father read a Paper on the subject, and brought there a professional marquetry cutter, who cut specimens in the room so that those present might see the process. Among other points, too, he illustrated the fact that two panels were constantly made of the reverse colourings by cutting through the ground and the pattern at the same process. The famous inlayers like Buhl, who did so much work of the best kind in France in the time of Louis XIV., habitually cut their work in that way; and it was quite a common thing to produce two pieces of furniture in which one was brass inlaid in the black, and in the other case the pattern was black inlaid in the brass; so that it was a very obvious utilising of what would otherwise have been very costly waste material. There was another point in this process which he thought Mr. Aumonier had not touched on. Instead of pouncing the patterns on paper, the finer French

work had been done by engraving the pattern first in outline on a metal plate, and then transferring it to the paper. That, of course, was only worth doing where it was intended to repeat the design several times. The engraved plate gave a much finer line than the dotting of the pouncing, so that for fine work it was found worth while to engrave the design, and then print it on to the thin paper to work it from. As regards Elizabethan work there was a great deal of it existing in various parts of the country; much of it was very rough, but there were some very fine pieces—particularly he would mention those in Hardwicke Hall, where there was a good deal of old furniture that had been very little disturbed. Anybody visiting Hardwicke should not fail to inspect its interesting examples of English inlaid work. There were some beautiful pieces of Italian work to be found in almost all the principal towns of Italy; some of the finest were to be seen at Bergamo. Although he was quite inclined to agree with Mr. Aumonier about not combining carving with inlay, still it was very difficult to stand opposite the stalls in the Cathedral at Bergamo and repeat that opinion, because there was some of the most beautiful work, inlaid in relief and subsequently carved, in the pilasters that could possibly be executed: it was extremely delicate, and the effect was very fine and beautiful. There was, again, the well-known example in the South Kensington Museum—the marvellous cabinet made by Fourdinois for the Paris Exhibition of 1855. Nevertheless he agreed with Mr. Aumonier that it was not an art to encourage. When Mr. Heywood Sumner was mentioning the wax inlay, it reminded him that in Italian work there was another form of the same method, only not using wax but a "gesso" of glue and whiting. There were examples of furniture, cassones and other pieces, executed in that way, the ground having incisions made in it, just as if wood or ivory were to be let in, and then being filled in with a preparation of whiting and glue, with probably some linseed oil to set hard, then scraped off, when it resembled inlaid ivory. One of the most beautiful forms of inlay executed by the Italians was with ivory upon walnut wood or black wood, particularly on walnut wood, as less harsh than black. One ought not quite to taboo engraving on the surface,

because sometimes it was almost necessary for explanation. In doing figures, for instance, where the eye had to be indicated, this could hardly be done by a saw, because the worker had to come right into the middle of the space to cut the lines—there was the process of letting the saw through to begin with. Still he admitted that the engraver should have a very subordinate part. As regards the tinting, no doubt stained woods were frequently used by the Italians, and still more by the French. A great many of those pieces which were so charmingly toned in colour now were very often brighter when they were made, and undoubtedly stained woods were used: practically there was no more reason against using stained wood than stained ivory. However, there was no doubt that the more nearly the work could be confined to the natural products, the more harmonious and as a rule the more beautiful the result would be. He had much pleasure in proposing a vote of thanks to both Mr. Aumonier and Mr. Heywood Sumner.

MR. BUTLER WILSON [F.] seconded the vote of thanks. He had, he said, long taken a great interest in furniture, and more recently in inlay, to the extent that an architect could. To hear remarks on such subjects from craftsmen must always be interesting to architects. Probably the earliest examples of inlay were to be found in the Venetian work of the fourteenth century, when wood was inlaid on ivory boxes. Inlay was practically mosaic in wood; but it was something more. The desire to differentiate colour by means of inlay had taken many forms. In the sixteenth century they had inlays of coloured marbles. He might instance a particularly fine example to be seen at the Victoria and Albert Museum, a frieze of white marble, 3 ft. 6 in. by 9 in., inlaid with scores of variously coloured marbles. In the eighteenth century, both in Dutch and English work, they found examples of coloured straw-work which gave a wonderful appearance of elaborate inlay. Coming to the great inlayer Buhl, we found inlay carried further than it perhaps ought to be. We had at South Kensington many examples of this master's work. To instance one of these, he might mention an eighteenth-century *commode* of late Louis-XIV. period, of tortoise-shell, mother-of-pearl, and coloured ivories inlaid in brass. Also a console table in the same collection, of Louis-XIV. period, of engraved brass inlaid in tortoise-shell, the design being that of a triumphal car with attendants. In such examples as he had referred to he thought there was a misuse, or a misapplication, of materials. Hence, although excellent examples of technique, they were nevertheless bad art. The extravagances of Buhl reminded him of a visit to the island of Murano, where he saw some very good modern glass, but

where they also offered him glass watch chains and glass slippers! He would much rather turn to the English oak panelling of the sixteenth century, such as that in the room from Sizergh Castle, a panel of which he observed was among the exhibits that evening. The inlay of holly and bog oak, although of simple design, seemed to him most agreeable to the comparatively rude style of the apartment. The panel as exhibited did not perhaps look particularly rude, but the room was as a whole rather on the coarse side. It would be observed that there was no stopping between the inlay and the oak—the saw-cut was clearly to be seen. Amongst other examples of inlay which he admired he might mention those of the choir stalls in San Miniato al Monti and Santa Croce at Florence. Thus it seemed to him that inlay of a simple and restrained character would best meet the general needs of English domestic work.

MR. W. G. WILSON [A.] supported Mr. Aumonier's contention that each piece of veneer must be cut separately, in order to ensure accuracy of fitting.

MR. AUMONIER, referring to Mr. Crace's remark about the engraved pattern, asked if any engraved pattern could give a finer line than the pouncing on the paper which he exhibited.

MR. CRACE said he was not comparing the excellence: but, as a matter of fact, the French inlayers did engrave metal plates and print from them. He had seen it done in France.

MR. AUMONIER said that nearly all the marquetry cutters in England were Frenchmen, and worked on the system he described. Quite as fine a line would be got by pouncing as by engraving. Again, there was nothing they could do with engraving in the way of eyes but what they could do with the saw cut. They were not obliged to put the saw cut through the wood if they wanted to make an eye; they simply had to bore the hole and saw out a separate piece to make an eye. He would not have a single line engraved on marquetry or inlay. The wood should be made to speak for itself. The grain must be arranged in such a way as to give the feeling of the subject they wished to represent.

THE PRESIDENT said he had been rather surprised that no mention had been made of the elaborate inlay work of the East, in Egypt and India. Mr. Butler Wilson had referred to the smallness of the pieces in some marble inlay he had seen. He should like to mention the work of this kind at the Taj at Agra. He had made some drawings of this work, and showed them at the Institute some years ago. They represented a number of roses on the tombs at Agra which were inlaid entirely with semi-precious stones—cornelians, agates, bloodstones, &c.: in the little roses, there were hundreds of these stones which could be covered by a shilling—with

thirty-two pieces of cornelian or agate—and every joint could be covered by a hair. So far as he had seen work in Italy, France, Egypt or India, he thought the Oriental inlays in many respects were far superior to our Western examples. When he was with Mr. Burges, many years ago, he was very much interested in the inlays that he did for

Worcester College Chapel, Oxford. They were some of the nicest specimens of modern inlay work that he had ever seen.

A vote of thanks was also passed to the authorities of the Victoria and Albert Museum, and especially to Mr. Purdon Clarke, for lending the specimens exhibited in the Meeting-room.



9, CONDUIT STREET, LONDON, W., 12th April 1902.

CHRONICLE.

The Royal Gold Medal, 1902.

The President, in announcing at the meeting last Monday the Council's new nomination for the Royal Gold Medal, recalled the mournful circumstance of the death of their previous nominee, Mr. J. F. Bentley, on the eve of his election, and reminded members that the Council had consulted the King's pleasure regarding the proposal to present the Medal to Mr. Bentley's family in recognition of his great services to architecture. The King had replied, sympathising with their motives for making the proposal, but thought it would create a dangerous precedent to present the Medal as suggested. The Council, therefore, had no other course than to nominate someone else. Their choice, the President said, had fallen on Mr. Thomas Edward Colleutt, and the Council that afternoon had nominated Mr. Colleutt for the honour. It needed, the President continued, no words from him to tell them of the work that Mr. Colleutt had done, and of his distinguished services in the interests of architecture, which had caused the Council to come to this unanimous decision. The election would come on in due course, and he had little doubt that the general body would duly give effect to the Council's nomination.

Architectural Copyright.

A communication has been received from Monsieur Georges Harmand, Avocat à la Cour d'Appel, Paris, to the effect that the law of artistic copyright has at last been extended in France to include works of architecture. M. Harmand, who

is closely connected with the Société Centrale des Architectes Français, has been devoting his energies for many years to the accomplishment of this end, and must be heartily congratulated on the success of his efforts. Members will remember the exhaustive Paper read by M. Harmand before the Institute on the 4th April 1898 on "Artistic Copyright, with special reference to Architects." The full text of the official announcement in the "Journal Officiel de la République Française" is as follows:—

Loi étendant aux œuvres de sculpture l'application de la loi des 19-24 juillet 1793 sur la propriété artistique et littéraire.

Le Sénat et la Chambre des députés ont adopté, Le Président de la République promulgue la loi dont la teneur suit :

Art. 1^{er}.—Il est ajouté à l'article 1^{er} de la loi des 19-24 juillet 1793, après les mots : "les auteurs d'écrits en tous genres, les compositeurs de musique . . ." les mots : "les architectes, les statuaires . . ."

Art. 2.—Il est ajouté à l'article 1^{er} de la loi des 19-24 juillet 1793 un paragraphe ainsi conçu : "Le même droit appartient aux sculpteurs et dessinateurs d'ornement, quels que soient le mérite et la destination de l'œuvre."

La présente loi, délibérée et adoptée par le Sénat et par la Chambre des députés, sera exécutée comme loi de l'Etat. Faît à Paris, le 11 mars 1902,

Par le Président de la République, ÉMILE LOUBET,
Le ministre de l'instruction publique et des beaux-arts,
GEORGES LEYGUES.

Le ministre du commerce, de l'industrie, des postes et des télégraphes,
A. MILLERAND.

The Artistic Side of Mr. Rhodes.

The *Times* of the 7th inst. has an interesting letter under the above heading from Mr. Herbert Baker [F.], architect of Groot Schuur, Mr. Rhodes's house in Cape Colony. The following are some extracts:—

Artistic problems first presented themselves to his mind when, as Premier of Cape Colony, he made his home in the Cape Peninsula. His intense and genuine love of the big and beautiful in natural scenery prompted him to buy as much as he could of the forest slopes of Table Mountain, so that it might be saved for ever from the hands of the builder, and the people, attracted to it by gardens, wild animals, and stately architecture, might be educated and ennobled by the contemplation of what he thought one of the finest views in the world. . . .

The ennobling influence of natural scenery was present in his mind in connection with every site he chose and every building he contemplated; such as a cottage he built, where poets or artists could live and look across to the blue mountain distance; a University, where young men could be surrounded with the best of nature and of

art; a lion-house, a feature of which was to have been a long open colonnade, where the people could at once see the king of beasts, and the lordliest of mountains; the Kimberley "Bath," with its white marble colonnades embedded in a green oasis of orange grove and vine trellis, looking to the north over illimitable desert. Such things would perhaps occur to most men, but with him they were a passion, almost a religion.

When first attracted by art problems, he characteristically probed down at once to bed-rock principles, and, though often crude, limited, and almost too "colossal" and barbarously big in his ideas, he had an extraordinary instinct for choosing the right from the wrong, when both were put before him, and grasping the essentials of truth and simplicity in art.

His first and greatest work in architecture was the preservation of the old colonial Dutch farmhouses, with their good colonial-made furniture, previously ignored and neglected, and the adaptation of their better characteristics to modern requirements. By so doing he influenced the public towards a respect for antiquity, and put a stamp of taste and originality on the present—and, it is hoped, the future—architecture of South Africa. This style was adopted without any pedantry or affectation, or, as some hinted, political motives, but with a genuine appreciation of its good points after the bad were discarded, and of its suitability to the country; caring little whether it was old or new, Dutch or English, as long as it was simple and good.

He entered fully into the modern spirit of honest workmanship, taking pleasure, for instance, in having the metalwork of his houses hand-made by local craftsmen. He started a tile manufactory near Cape Town for the main purpose of killing the blight of corrugated iron, and making the Cape Peninsula worthy in beauty for the capital of South Africa. . . .

Of his more monumental architectural schemes few have been realised. For these his taste lay in the direction of the larger and simpler styles of Rome, Greece, and even Egypt, recognising the similarity of the climate and natural scenery of South Africa to that of classic Southern Europe. He had the building ambition of a Pericles or a Hadrian, and in his untimely death architecture has the greatest cause to mourn.

LEGAL.

Interference with Ancient Lights.

THE HOME AND COLONIAL STORES (LTD.) v. COLLS.

The recent decision of the Court of Appeal in the case of *The Home and Colonial Stores (Ltd.) v. Colls* sums up usefully the principles on which the Court will grant an injunction against actual or threatened obstruction of ancient lights. The case came before the Court on appeal from Mr. Justice Joyce, and was heard on the 2nd and 3rd December last.

The action was brought to restrain the defendant from erecting on the site of 44 Worship Street any building or erection so as to darken, injure, or obstruct any of the ancient lights of the plaintiffs.

The plaintiffs were entitled, for the residue of a term having about seventeen years unexpired, to a block of buildings, which they occupied for the purposes of their business, having a south front to Worship Street and opposite to the site of No. 44. The buildings formerly standing on the site of No. 44 were 19 feet 6 inches in height, and the defendant at the date when this action was brought had entered into a building agreement to erect on the site a building which, when completed, would be 42 feet in height. Worship Street at this point was about 41 feet broad.

Mr. Justice Joyce and the Court of Appeal held that the apprehended injury only related to two windows on the ground floor of the plaintiffs' buildings. This portion of the ground floor consisted of a large room 11 feet 10 inches high and of unusual depth, being upwards of 50 feet from the Worship Street front, and it had no windows or source of natural light at the back. It contained several desks used by clerks in the employment of the plaintiffs, and was fitted with electric light, which was ordinarily used in the back part of the room in the daytime; but the Court held on the evidence that if the defendant's building remained, the plaintiffs would have to consume and pay for more electric light than before.

No part of the defendant's new building would be high enough to reach any line drawn at an angle of forty-five degrees to the horizon from any point in the base or sill of either of the windows in question.

Mr. Justice Joyce, on 21st December 1900, held that, according to the law laid down by Mr. Justice Wright in *Warren v. Brown* (1900), the plaintiffs were only entitled to the quantum of light sufficient for ordinary business purposes; that, notwithstanding the erection of the defendant's building, the plaintiffs' premises would still be well and sufficiently lighted for purposes of occupancy as a place of business; and that their selling or letting value would not be decreased; and dismissed the action.

The plaintiffs gave notice of appeal. Since the notice of appeal the defendant completed his building; and on 13th November 1901 the decision of Mr. Justice Wright in *Warren v. Brown* was reversed by the Court of Appeal.

Mr. Hughes, K.C., and Mr. W. E. Vernon for the appellants. Mr. Bray, K.C., Mr. Leigh Clare, and Mr. Nutter for the respondent.

[Counsel for the respondent suggested that the question of damage should be referred to an arbitrator, but the Court refused to do this against the wish of the appellants.]

Lord Justice Cozens-Hardy on 20th December read the judgment of the Court as follows:

This appeal raises a question as to the nature and amount of evidence required to entitle a plaintiff to relief by way of injunction for the protection of ancient lights. The action was tried by Mr. Justice Joyce in December 1900. This is important, because at that date it had been laid down by Mr. Justice Wright in *Warren v. Brown* that the owner or occupier of a house has no legal right of action so long as he has left to him as much light as is ordinarily required for habitation or business, even though he has been deprived of a substantial amount of light, and has thereby suffered substantial damage. This view of the law was accepted by the defendant's counsel, and, as we read the judgment, was adopted by Mr. Justice Joyce. Mr. Justice Wright's decision has recently been reversed by this Court, and the true rule of law with reference to the interference with ancient lights has been authoritatively laid down thus: "If ancient lights are interfered with substantially, and real damage thereby ensues to tenant or owner, then that tenant or owner is entitled to relief." In this sentence "substantial" does not indicate any particular percentage. In *Baek v. Stacey* [1826] an issue was directed by the Lord Chancellor whether the ancient lights of the plaintiff in his dwelling-house had been illegally obstructed by the defendant's building. Evidence having been given that the quantity of light previously enjoyed had been diminished, it was contended that the plaintiff was entitled to a verdict; but Chief-Justice Best directed the jury, in language which has been often cited with approval, thus: "It was not sufficient, to constitute an illegal obstruction, that the plaintiff had, in fact, less light than before; nor that his warehouse, the part of his house principally affected, could not be used for all the purposes to which it might otherwise have been applied. In order to give a right of action, and sustain the issue, there must be a substantial privation of light, sufficient to render the

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occupation of the house uncomfortable, and to prevent the plaintiff from carrying on his accustomed business (that of a grocer) on the premises, as beneficially as he had formerly done." And in *Parker v. Smith* [1832] Chief Justice Tindal directed the jury as follows: "It is not every possible, every speculative exclusion of light which is the ground of an action; but that which the law recognises is such a diminution of light as really makes the premises to a sensible degree less fit for the purposes of business." Without substantial interference there is no right of action, and in addition, in order to obtain an injunction, the plaintiff must establish substantial injury suffered or threatened. There is no standard or fixed amount of light to which alone a plaintiff is entitled. He must not be fanciful or fastidious. He must recognise the necessity of give and take in matters of this nature. But there may be real damage to the owner or occupier of a building used for particular purposes, or reasonably adapted for particular purposes, although there would be no real damage if the building were not used or reasonably adapted for such purposes. The application of these principles is far more easy when the building which is complained of has been erected, and damages only are claimed; but they have to be applied when the plaintiff comes for an injunction before the building has been erected. It is the duty of the Court to arrive at the best conclusion it can upon the effect which the proposed building if erected would produce, and if the Court is satisfied that in that event the plaintiff would have a good cause of action, the plaintiff is entitled, as a matter of right, to an injunction to prevent the defendant from interfering with his ancient light—or, in other words, to restrain the defendant from committing a wrongful act. The difficulty of applying the rule in a *quidam* action may well induce the Court to scan the plaintiff's evidence with severity, especially where an angle of forty-five degrees is left. It is settled that there is no rule of law that a man may always build up to an angle of forty-five degrees, but in judging of the probable effect of a proposed building the Court may not unreasonably regard the fact that an angle of forty-five degrees will be left as *prima facie* evidence that there will be no substantial interference, and may require this presumption to be clearly rebutted by satisfactory evidence. This seems to be the result of the authorities.

It remains to apply these general principles to the present case. We propose to accept all the findings of fact by Mr. Justice Joyce, where they are clear, without demur, and only to refer to the evidence where there is no finding, or where, as it seems to us, there are inconsistent findings. [His Lordship then proceeded to state the facts as found by Mr. Justice Joyce in his judgment, and after reading the following passage from that judgment—"Various expert witnesses were examined, and as the result of their evidence I am of opinion that the proposed new building would not affect the selling or letting value of the plaintiffs' premises"—continued:] If that means that an ordinary purchaser or lessee would be content to get a building having the usual amount of light enjoyed by similar houses in this part of London, we see no reason to doubt it; but it is not a relevant statement. The plaintiffs are neither vendors nor lessees. They are occupiers; and their only desire is to use this room for the same purposes as heretofore and with the same advantages. And it seems to us impossible to hold that they will not suffer "real damage" if they have to consume and pay for more electric light than hitherto. . . . As we read the judgment of Mr. Justice Joyce, it is a finding in favour of the plaintiffs that real damage would result, though light enough would be left for ordinary purposes of occupancy as a place of business, and there is no finding that the interference is not substantial. Now there was, immediately opposite the windows in question, what I may call "a gap." The direct light which passed through this gap penetrated to a considerable depth into the plaintiffs'

room. The interference with this light is "substantial" within the meaning in which the word is used. There being some obscurity on this point, it seems right to examine the evidence. [His Lordship then went through the evidence, and continued:]

In our opinion, on the balance of evidence, substantial interference and "real damage" will result; and the proper judgment would have been to grant an injunction in the settled form known as the *Yates v. Jack* form. But immediately after the action was dismissed with costs the plaintiffs gave notice of their intention to appeal. Notwithstanding this, the defendant has proceeded with and completed the erection of his building. Under these circumstances there is only one course open to us. We must reverse Mr. Justice Joyce's judgment and give the plaintiffs the injunction to which, according to our view, they were entitled. And we must grant a mandatory injunction requiring the defendant to pull down anything erected in breach of the terms of our injunction. This point was really decided by the Court of Appeal in *Parker v. First Avenue Hotel Company*. The defendant must pay the costs here and below.

Lord Justice Vaughan Williams.—The judgment which has just been read is the judgment of the Court; but I wish to add for myself that, so far as the rule of forty-five degrees is concerned, I doubt very much whether that rule, as the law is now settled, can be regarded even as a rough measure of the right of the owner or occupier of ancient lights.—Condensed from the *Law Journal Reports* for February.

MINUTES. X.

At the Tenth General Meeting (Business and Ordinary) of the Session 1901-2, held Monday, 7th April 1902, at 8 p.m., Mr. William Emerson, *President*, in the Chair, with 16 Fellows (including 10 members of the Council), 17 Associates (including 2 members of the Council), 2 Hon. Associates, and visitors, the Minutes of the Meeting held 17th March 1902 [p. 284] were read and signed as correct.

The President announced that the Council proposed to submit the name of Mr. Thomas Edward Collett to His Majesty the King as a fit recipient of the Royal Gold Medal for the current year.

The following applicants for candidature, found by the Council to be eligible and qualified according to the Charter and By-laws, were recommended for election—viz.: As FELLOWS (2), James Glen Sivewright Gibson (A. 1890); Henry William Chatters (Cheltenham). As HON. ASSOCIATE, Alfred Arthur Hudson (Wendover, Bucks).

The following candidates for membership were elected by show of hands under By-law 9:

As FELLOWS (2).

ROBERT LANGTON COLE [A. 1889].
JAMES MILLER (Glasgow).

As ASSOCIATES (3).

ALFRED ERNEST BIGGS [Probationer 1895, Student 1897, Qualified 1901] (Felixstowe).
WALTER WATKIN ELLISON [Probationer 1895, Student 1898, Qualified 1901].
THOMAS MARSHALL SMITH [Probationer 1896, Student 1897, Qualified 1901].

Papers on INLAY AND MARQUETRY having been read and illustrated by Messrs. W. Aumonier and Heywood Sumner, a discussion ensued, and a vote of thanks to the readers of the Papers was carried by acclamation. A vote of thanks was also passed to the authorities of the Victoria and Albert Museum, and especially to Mr. Purdon Clarke, for the loan of specimens of old work in inlay for exhibition at the Meeting.

The proceedings then closed, and the Meeting separated at 9.45.

NOTES ON THE PRACTICE OF PICTORIAL MOSAIC.

By CLEMENT HEATON (Neuchâtel).

M R. ANNING BELL'S Paper* introduces the interesting subject of pictorial mosaics; and having not long since executed several works in this art (partly designed by myself), it may be useful to send some of the fruits of experience gained.

Mr. Bell's work is delightful, and is a national honour. I had the greatest pleasure in seeing it, and congratulate its authors.

Such remarks as I have to make are in the way of completing what Mr. Bell has said, for the subject is one which bears dealing with from many points of view. If this art obtains anything like regular support we should probably see schools of mosaics, as we see them in painting—if, indeed, we cannot see their commencement already begun.

First, as to the *aim* in working. This is governed by contemporary education and thought. Up to the end of the fifteenth century all were unconsciously agreed to look at mosaics from the decorative or architectural standpoint, but afterwards this and other arts were wrested from their right place under the governing desire to imitate painting. This was one of the fruits of the Humanist movement, and was manifested in the tearing down of a godly part of the mosaics at St. Mark's, and their replacement by designs by Titian and others. From then well on into the nineteenth century this idea prevailed, to be succeeded by a misunderstood reaction, which blindly reproduced what was thought to be archaically correct. We are happy in living in times when a general movement of thought has enabled us to set value on the old principles while seeking liberty of expression therein; but our predecessors could not possibly enjoy this position, and we must not be hasty to blame what was inevitable as part of an evolution of thought and education.

In Continental centres to-day the *quality* Mr. Bell so rightly seeks is little appreciated—if, indeed, at all; and the idea of copying servilely a picture or cartoon is all that is desired. One meets opposition in going further. And we see the treasures of the past, full of beauty, pulled down, to be replaced by new, clean, and correct work, which gives no pleasure. Nevertheless, it is true that quality of surface and of colour is of importance, and mere exactitude in reproduction is no use.

We must, however, guard against the other extreme of putting design in a secondary place. A general study of Romanesque colour decoration

has led me to believe that in this epoch, when the great mosaics were produced, all kinds of colour decoration as an architectural complement were well understood—better than in the succeeding Gothic epoch. This knowledge amounted to a veritable science, making even common pigments appear precious. I am inclined to think that people, on seeing such buildings as St. Mark's, San Vitale, or the Battista Orthodoxa, run away with the idea that the beauty of what they see is all owing to the mosaics because these works are in mosaic, whereas one really admires Romanesque (or Byzantine) skill of design as expressed in mosaic. Even where pigment only has been used, we find much of the same skill and beauty,* and we can see failures in mosaic which prove that mosaic is no good apart from skill in design. Right technique will give better value to a good design and do something to redeem a bad one; but rightness of design will be of value even in technique which fails to give all the possible value to mosaic work; and by rightness I mean fitness as an architectural accessory.

One of the points raised in discussion is the return to archaic design. My experience has led me to see that there was definite reason for the character of design found in old work—usually so distinctive that one can say at a glance, "That is mosaic," just as one could say, "That is stained glass." Character comes as a result of following the lead of the material. Enamel (from which mosaic is made) when melted is a viscous mass like treacle or honey, spreading out on a slab into a round cake about three-eighths of an inch thick, which hardens into glass. This, when cut up by chisel-like hammers, flies into cubic pieces running from a cube into an oblong $\frac{3}{8} \times \frac{3}{8} \times 1$ inch, irregular in form, with surface tending to be concave or convex. If larger pieces are wanted we must use the side of the cake; but all ancient mosaic work is, I believe, made of the cubic pieces cut across the cake.

I have found that the pieces cut up by the primitive hammer are much more varied and interesting than those cut up by some mechanical tool in use to-day in Italy, and produce just the quality seen in ancient work. Byzantine work is built up of these squarish pieces; two sizes were used—small pieces for faces and hands, and larger ones for the rest.

Now note the action of this in design. Rounded curves are less easy to produce than flat ones or straight lines. *A certain severity of line and the use*

* An example of such painted decoration is to be found in the Chapel of St. Gabriel, Canterbury Cathedral.

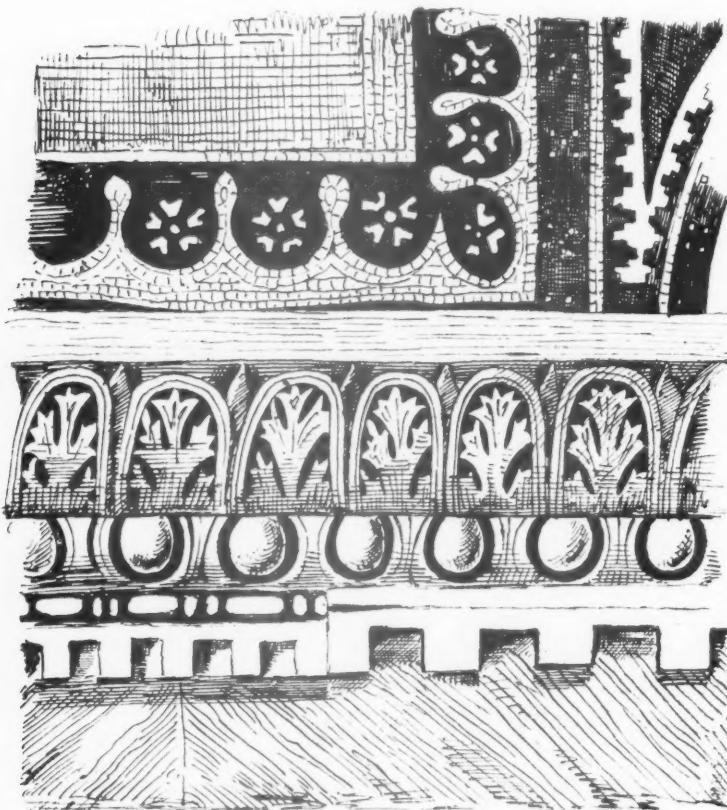


FIG. 1.—San Vitale, Ravenna. Sketch-note, showing the free way the ornament is worked in perfect harmony with the marble cutting below, which is full of black, marrying the mosaic to the marble. Parts of this border have been restored and "correctly" interpreted. This design is also a good example of forms suggested by the tesserae.

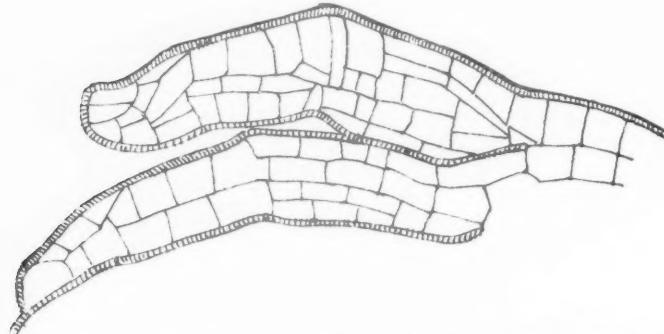


FIG. 2.—Part of a hand worked from the front, and the tesserae worked directly on a soft cement, but fitted together by grinding to imitate a painting with shadows. Modern system.

of zigzag forms come naturally to be adopted. Further, one cannot vary a surface in gradations as with brushwork. One must deliberately step from one square or line of squares to another; and each line will be the thickness of the cake, or multiples of this thickness ($\frac{1}{8}$ inch), just as a wall is built of so many courses of bricks. So, as play of colour was necessary, an arbitrary, deliberate system was adopted to obtain it, which gives the peculiar character we recognise at once. I have adopted this rational system in designing work for the new Parliament House at Berne, and found work pleasant and successful.

But the modern idea of making a picture first, regardless of the glass, and *copying* it in tesserae exactly, has led to a new and false system, in which the tesserae are hacked and ground to fit together, so, by a *tour de force*, copying anything. This is quite another thing from the old art, in which no grinding was resorted to. I was told at Venice it was impossible to do figure-work without grinding; but we found it could be done, and the result was a texture just like old work. And at Paris I was told they had improved on the Italian method of grinding. While working from the front, as Mr. Bell recommended, they still used a system which is very different indeed from the old work, and which gives another effect. Let this be noticed, because merely working from the front in oil cement is not a cure for all the ills which

have afflicted the art of mosaic. Some prefer this ground-down work, and criticise the irregular treatment unavoidable otherwise. So it is, as already said, a question of aim. But whereas the organic, natural process produces a rhythmic surface like the texture of human skin, the ground-

and too hard; and to increase this flatness and hardness is surely a mistake. I have the idea that the old masters of the art sought to avoid this flatness and hardness. They did so by a number of delicate usages which were traditions. They either did not use outlines or used outlines in colour



FIG. 3.—Example of Byzantine Workmanship, San Vitale, Ravenna.

down process is uncomfortable, and it seems highly reasonable to adopt the ancient practice.

Another important question is that of effect at a distance. Most modern work is composed of blended tints, which look flat at a distance, with a hard black line all round. Now the tendency in mosaics is just that they get to look too flat

(rarely black), and, while not blending the surfaces, they cut them up in gradated lines. So we have a very pleasing impression of soft, harmonious surfaces, with a spicier, sparkling quality at the same time. How wise this was! The Renaissance came along, and, brushing them aside, said, "You fools! You must stop this and copy the

painters." They did, and the traditions were lost ; and our task is to pick up the threads where they dropped them and go on beyond, not repeating or imitating what they did, but expressing our ideas in the way they did theirs.

everything it is put with. An advance is made when the tesserae are put at varying angles, but even then we have multitudinous small mirrors flashing out their tiny rays into space, which gives, as Mr. Crane remarks, "glitter and garish-



FIG. 4.—Mosaic executed in the Studio at Neuchâtel, in which the ancient Byzantine system is adopted of pieces hammer-cut only, the effect being sought from a distance. Designed by Mr. Paul Robert.

As to gold grounds, quality is of all importance. Modern gold, nearly all I have seen in use, is much like yellow-looking glass, hard and bright, cut into squares, ground to fit maybe, and giving a broad piece of mirror flashing out light and killing

ness." But the gold of old mosaics, as at Apollinare Nuovo, Ravenna, even on a flat wall, is soft and sympathetic, with a roughish surface ; it does not flash and does not kill, but gives a soft brilliancy admirably blending with the figures on

it. The design of figure work and ornament when on gold is bright and sharply varied, so as not to look a heavy mass on the gold.

ground out of doors, I was able to get it nearly right—at least, inoffensive—by working on the lines of the old traditions, which, while known, it



FIG. 5.—Example of a Modern Figure executed on the principles of ancient Byzantine work, but not slavishly copied. For distant effect. Designed and executed by Clement Heaton.

It is evident that such kind of gold ground may be used where the common gold of modern use would be garish and destructive. In one case where I was, against my will, obliged to use a solid gold

appears, to modern mosaic-workers in Italy, are left unused.

As to tints used. Romanesque painted decoration is simplicity itself. A red, a white, a green, a

black, a grey, a yellow, and rarely a blue are what was habitually used. And with such a palette they gave charm to interiors in a masterly way. So also mosaic-workers had few colours—gold, white, black, two blues of different intensities, violet, green, greenish-yellow, dark red and orange-red, and a few broken tints. Rose was in marble, and the white or grey also sometimes. With this narrow *répertoire* they achieved their success, working on well-known principles, as did the decorators in pigments. Therefore many tints are not necessary, and great richness can well be obtained in great simplicity—as we find true also in stained glass.

Yet there is a point where we may go beyond the ancients with advantage, and that is in the use of harmonised greys. The ancients had little grey, and at Ravenna were reduced to use white and rose marble mixed with the glass. But we to-day have oxides—gold, nickel, and chromium—which it would be folly to ignore; and which, with the purple from manganese, give a magnificent series of pinks, violets, greys, grey-blues, greenish-yellows, and yellow, making a palette perfect for our northern climes.

Modern oil-painting has shown us the beauty of grey and broken tints in Nature. We shall, I think, in mosaic cultivate pearly greys in decoration which would be too delicate to resist dirt in other mediums, thus appealing to the colour sense developed in modern times. But to do this the artist must make his glass, as I found it necessary to do, or at least control its making closely, as some harmonies are difficult to get right in value. When one has the organisation to do this, how the rebellious nature of the material softens away!

With these resources as to colour I was astonished to find the great scope existing *within the definite limits of the early technique*. Painters get beautiful quality with distinct touches of bright colour; and the same principle is good in glass, and simple technique suffices. The future holds store of glorious possibility, and one can realise

modern ideas while remaining faithful to early principles and procedure.

As to fixing, I cannot but think that one cannot be too hard and fast in laying down a law as to how it is operated. When uniformity is desired and quality is not sought, it is not surprising if one gets uniformity and not quality. The great thing is to seek for beauty and equality, and get it how one best can. It is to be remembered, also, that in fixing we have to think of the wear of the elements for many years; and it is questionable whether it is wise to ignore the knowledge possessed by specialists in the chemistry of cements and the experience of builders and architects.

But one has the impression that one is at the threshold of an open door. The ancient masters had centuries of tradition to go upon, and were in touch with that fountain of colour-lore, the East. We have much to learn, and shall learn it in working; and slowly the tradition must be built up again by the study of principles and by exchange of thought—especially all that concerns the action of light and distance on tints.

To conclude: as to quantity, everyone seems to agree that mosaics should be used in large quantity and that small panels do not look well. Yet this, however true, condemns many and many a reredos which it was the fashion to consider "the right thing to do" not long ago. But I think Mr. Bell goes too far in thinking it cannot be allied with marble or stone. It is well allied in Ravenna and Venice; only there it is used, as also at St. Sophia, associated with bands of carved or incised work, with lacy surfaces full of black and white in between. This leads the eye from one surface to the other without too abrupt a transition; and this principle, which the architect has in his power to observe rather than the mosaicist, is the key to success. Gothic carving does not "carry" enough to stand against mosaics. If mosaics are brought into use the handling of the adjacent carving will require modification on the lines of Byzantine principles.

